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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,013	12/16/2005	Per Atle Valand	P18272-US1	1230
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ERICSSON INC. 6300 LEGACY DRIVE M/S EVR 1-C-11 PLANO, TX 75024			EXAMINER LIU, HARRY K	
			ART UNIT 3662	PAPER NUMBER
			MAIL DATE 12/07/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/595,013

Applicant(s)

VALAND, PER ATLE

Examiner

Harry Liu

Art Unit

3662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22-26 is/are allowed.
- 6) ☒ Claim(s) 14-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Receipt is acknowledged of applicant's amendment filed (10/12/2007). Claims (14-26) are pending and an action on the merits is as follows.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 14-16, 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Soliman (6081229).

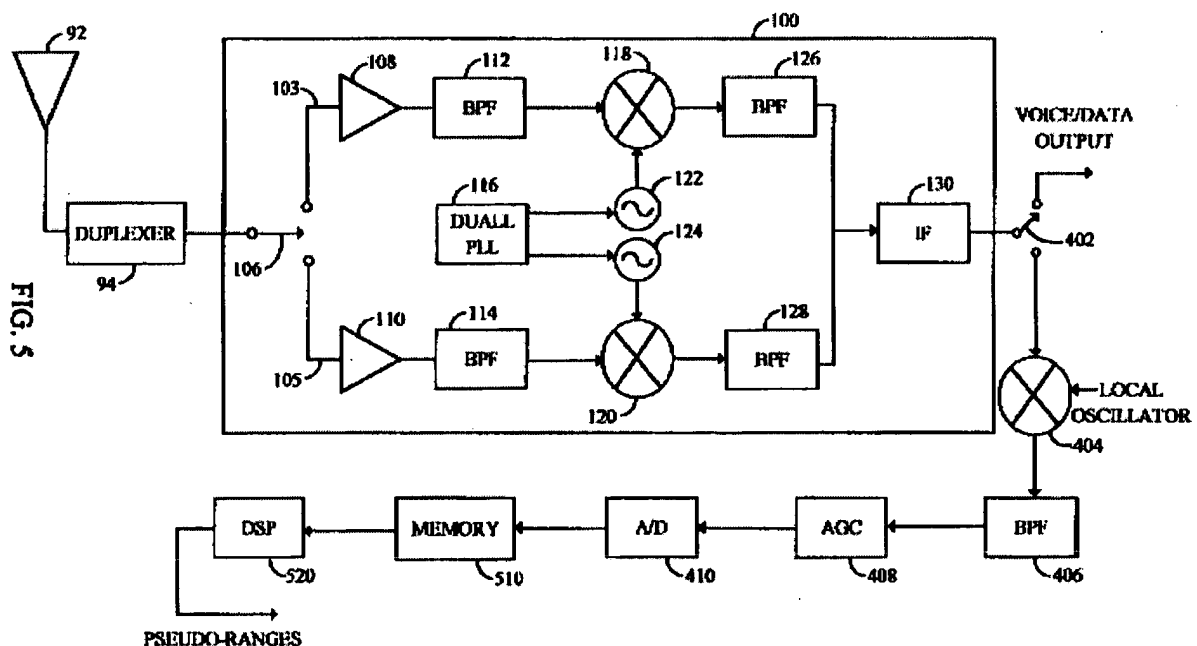
Regarding claims 14, 21, Soliman discloses detecting the presence of a radar emitter (determining position of a wireless transceiver) comprising the steps of:

Receiving radar signal (wireless uplink signal) by a plurality of antennas, each antenna pointing in a different direction and covering a sector of surrounding area (cellular system has multiple antennas/sectors).

Splitting the radar signals received from the antennas into a number of first sub-bands (a cellular sub-band varies from 1.25MHz up to 15MHz depends on spectrum allocated, a GPS receiver also needs to look at subbands in the spectrum).

Converting each of first sub-band channels (a digital receiver module 100 down convert signal to baseband) into baseband channels (the LO404 converts signals to baseband, column 7, lines 54-55). Summing all baseband channels to form a common baseband channel (baseband output from multiple receivers of different subbands will need summing); digitizing signal with A/D (article 410) (see FIG. 5 below).

Processing the digitized signals in order to detect and identify the emitter (transmitter) source (DSP 520 process GPS signal for positioning) (column 7, lines 59-62).



Regarding claim 15, Soliman discloses the steps of converting each first sub-band into an intermediate frequency channel (IF 130). Summing all intermediate frequency channels to form a common baseband channel (baseband output from

multiple receivers of different subbands will need summing). Splitting and converting sub-bands into baseband channel.

Regarding claim 16, Soliman discloses the performing of pulse detection on each IF channel prior to summing in order to determine the direction and frequency (cellular and GPS receiver has different receiver and demodulation process).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soliman (6081229).

Regarding claim 17, Soliman discloses transforming received pulse signal into frequency domain (cellular and GPS both have sub-band, dividing into sub-band is a frequency domain). Soliman inherently discloses measuring direction of arrival, time of arrival by using cellular system for positioning a mobile. Measuring pulse width for determining the amount of energy received. Soliman fails to specifically disclose measuring pulse peak amplitude and average amplitude. However, it is a common technique in GPS measuring pulse peak and average is a known way of measuring information energy in deciding if the detected is a signal or noise. It would have been

obvious to modify Soliman with pulse peak and average in order to differentiate if detected signal is a real information or noise.

Regarding claim 18, Soliman discloses using cellular/GPS signal to position emitter. Identifying the source of pulses coming from can be done by PN. Performing and classifying analysis on emitter by despreading the PN and finding the signal strength.

Regarding claim 19, Soliman discloses using cellular/GPS signal to position emitter. The emitter analysis includes improving direction of arrival measurements by averaging (averaging and weighting of received signal is inherent in triangulation). It is known that beam width of an emitter/transmitter can be measured by comparing pulse amplitude. Amplitude drop of 3dB is a typical threshold of deciding antenna beamwidth.

Regarding claim 20, Soliman discloses using cellular/GPS signal to position emitter. Triangulation is the typical method of using neighboring multiple beacons to help for calculation.

Allowable Subject Matter

5. Claims 22-26 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: a plurality of receiver second stages, each connected to a receiver front end and receiving said common intermediate frequency channel, said intermediate frequency channel being fed to a number of third band-pass filters in order to split said common intermediate frequency channel into a number of second sub-bands, the

output of each third band-pass filter being fed to a second amplifier, the output of the second amplifier being fed to a second mixer, said second mixer being adapted to convert said intermediate frequency channel into baseband, the output of the second mixer being fed to a fourth band-pass filter, the outputs of all fourth band-pass filters being fed to a second adder, said second adder being adapted to combine the signals received from the fourth band-pass filters into a common baseband channel are not taught nor obvious over the prior art

Response to Arguments

Applicant's arguments filed (10/12/2007) for claims 1-21 have been fully considered but they are not persuasive.

Applicant argues for claims 14-16 and 21 that Soliman fails to disclose or teach "receiving said radar signals by a number of antennas", as recited in independent claim 14, and "a plurality of antenna sets for receiving the radar signals" as recited in independent claim 21. Soliman discloses a system with CDMA wireless device with GPS capability for use in E911 range calculation. By definition of radar (see below), the wireless device is a radio sending radio waves to base station, the wireless device further receive radio waves from satellite and base station and so as the base stations are receiving signals from satellites and wireless device. **Base station has a number of antennas** for receiving **radar signals** (radio signals for detecting object and determining their position) from satellites and wireless device.

Applicant argues for claims 14-16 and 21 that Soliman discloses only GPS signal which is continuous signals while applicant is claiming for a radar signals (pulse signals). Note that radar signal is continuous like GPS signal before it is processed with A/D converter, that is why claim 21 needs a A/D converter to get pulsed signal (digitized signal).

Definition of Radar: A method of detecting distant objects and determining their position, velocity, or other characteristics by analysis of very high frequency radio waves reflected from their surfaces. **American Heritage Dictionary**

Applicant argues for claims 17-20 that Soliman does not disclose transforming signals to frequency domain and dividing the cellular band into cellular channels is not frequency transformation. Both CDMA and GPS technology has to transform received signal to frequency domain. An example of this is demodulation which takes out the carrier frequency and eventually extract the frequency domain (baseband signals out).

Applicant argues for claims 17-20 that Soliman does not disclose a method for direction of arrival determination. Soliman discloses use of triangulation technique which is using signal strength and determination of signal direction to find position.

Applicant argues for claims 17-20 that Soliman does not disclose a method for position determination of a noncooperating remote emitter. This feature is claimed.

Applicant argues for claims 17-20 that Soliman's method cannot inherently provide a method for improving direction of arrival measurements, since direction of arrival is never measured in Soliman. Triangulation technique used in E911 system is known with better accuracy when more signal sensors are participating in calculation.

By use of cellular base stations, it is an advantage to improve accuracy of GPS since base stations are helping in triangulation instead of satellites only. This is an improvement in direction.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry Liu whose telephone number is 571-270-1338. The examiner can normally be reached on Monday -Thursday and every other Friday..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-270-2338.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner
Art Unit 3662
November 30, 2007



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